

# Heat, Humidity

By Cdr. Martin Plumleigh,  
Staff, ComLantFlt

● A lance corporal sitting in a warm classroom in June suffers a heatstroke. The temperature outside is about 90 degrees Fahrenheit, with 95 percent humidity. What caused this problem? The victim wasn't accustomed to the environment (he just had arrived from a cooler climate). The air conditioning also wasn't working right.

● Firefighters are training with SCBA equipment in red-flag conditions when one of them goes down with heat exhaustion. After this incident, supervisors were told to check flag conditions before training and to call a timeout anytime they felt the situation was unsafe.

● A Sailor in formation for a uniform inspection begins sweating profusely and feeling lightheaded. He

is diagnosed with dehydration. Before this incident occurred, the victim had participated in stretching exercises and calisthenics, then went to chow, with no symptoms of any problem.

**A**s these examples show, heat and humidity can and will take a toll on each of us as we work and enjoy the summer months. The human body has its own mechanisms for dealing with the heat. As the body heats up, our brain puts our cooling

Navy photo by JO2 Jason Trevett

A Sailor with Inshore Boat Unit 25 takes a break during his 12-hour patrol off the coast of Fujairah in the United Arab Emirates. Temperatures there can reach more than 100 degrees Fahrenheit during the early morning hours.

# and Our Bodies

system into action. It increases blood flow to the skin and causes our sweat glands to open, allowing liquids to flow out onto the skin. This sweat evaporates from our skin, cooling our blood and tissues.

The brain is our thermostat, and the sweat glands and blood vessels are the air-conditioning plant. If conditions cause one or both of these mechanisms to fail, anything from simple fatigue to death can occur if we don't recognize the problem and do something about it.

The ailments that can result from overexposure to hot, humid environments range from the mild to the severe. They include heat cramps, fainting, heat rash, heat fatigue, heat exhaustion, and heatstroke. Heat cramps are characterized by painful cramping of muscles in the arms, legs and abdomen. They have been attributed to an imbalance of electrolytes in a person's system, which can be caused by too much or too little salt intake but mostly a lack of water replenishment. Drinking at least a cup of water every 15 or 20 minutes will prevent this problem.

Heat rash, sometimes called prickly heat, is the most common complaint in hot, humid locales. It's characterized by red, bumpy patches of skin in areas where sweat doesn't dry well, usually where our clothing tends to bind and trap the sweat. Prickly heat is simple to prevent and cure. Allow your people ample time to rest in a cool, dry area, and discourage them from wearing clothing that is tight and doesn't let the skin breathe. Personal hygiene also is a factor; regular bathing will prevent sweat glands from clogging.

Heat collapse results from the brain not receiving enough oxygen when blood is pumped to and pools in the extremities of the body, causing fainting. Encourage people to keep moving and to acclimate themselves to a new environment slowly. It causes both mental and physical degradation. As people get used to new conditions over the first few days of operations, gradually increase their exposure to the heat and humidity, making sure an ample supply of cool water is available.

Heat exhaustion and heatstroke are the two most dangerous phenomena related to overdoing it in a hot, humid environment. Headache, nausea, vertigo, weakness, thirst, and giddiness characterize heat exhaustion. Supervisors should watch people closely

and remove anyone showing these symptoms. Heat exhaustion dissipates rapidly once the person is in a cool environment, takes some cool fluids (non-alcoholic), and rests.

It's important not to take the symptoms of heat exhaustion lightly because they are similar to those for heatstroke, which is extremely dangerous if not treated immediately. Heatstroke is a medical emergency characterized by confusion, irrational behavior, loss of consciousness, lack of sweating, hot and dry skin, and an elevated body temperature (105 degrees Fahrenheit or more). If someone shows these symptoms, get medical help immediately and place the person in a cool environment. Also remove the outer layer of clothing. Wet the exposed skin and fan it to improve evaporation and cooling. Replace lost fluids immediately.

In all of these cases, the affected person's overall health and fitness will be a factor that contributes to their susceptibility. People who just have arrived in a hot, humid environment should take three or four days to get used to it, then gradually increase exposure time. Easy access to cool water is a must. Over a day, the human body can put out as much as two or three gallons of sweat, and these fluids must be replaced. To ensure this happens, drink seven ounces of water an hour. You may have to increase this amount during periods of extra heavy activity.

Participating in athletics and drinking alcohol are examples of activities that can increase our need to take in extra amounts of water. Always make sure plenty of non-alcoholic fluids are available at summer parties and athletic events. For work, it's a good idea to put out extra water coolers. For athletics, observe indicators put out by the base to identify the severity of the heat factor for that day. A black flag usually indicates that athletics should be curtailed because of excessively high temperature and humidity.

Each of us should be our own monitor. Know your limits, take it easy, and give yourself time to get used to a new environment. Take in plenty of fluids, and make sure people around you do the same. Above all, know when it's time to get some relief from the heat. ■

*The author was assigned to VAW-123 when he wrote this article.*